View a Larger Picture

Watt's Up Meter

Our Watt's Up DC Ammeter measures eight parameters: Amp hours (Ah), Watt hours (Wh), voltage, Watts and captures peak current (Amps), peak power (Watts) and voltage sag (minimum Volts).

Customer Reviews

(5 reviews)

Read All Reviews | Write a Review

Volume Pricing

QTY	Price Each
1 - 9	$59.95
10 - 24	$56.95
25 - 99	$55.75
100+	$53.95

Need a Larger Quantity? Request a Quote

Color	End Configuration	SKU	Availability	Price	
Black	Bare Ends	Watt-BLK-BARE	In Stock	$59.95	ADD TO CART
Black	Powerpole Ends	Watt-BLK-PP	In Stock	$59.95	ADD TO CART
Blue	Bare Ends	Watt-BLU-BARE	In Stock	$59.95	ADD TO CART
Blue	Powerpole Ends	Watt-BLU-PP	In Stock	$59.95	ADD TO CART
Green	Bare Ends	Watt-GRN-BARE	In Stock	$59.95	ADD TO CART
Green	Powerpole Ends	Watt-GRN-PP	In Stock	$59.95	ADD TO CART

Related Products

Auxiliary Power Connector Cable

Our Auxiliary Power Connector Cable makes it easy to connect the Watt's Up or Doc Wattson meters to an optional power source like a battery pack, power supply, etc.

$3.95

Doc Wattson Meter

Doc Wattson has higher capacity than Watt's Up. It acts as a "fuel gage" to monitor battery bank Amp hours, Kilo Watt Hours and the seven electrical values needed in RV and Marine applications.

Description

Why You Need One

Without a wattmeter, a hobbyist is left to guess or estimate what's going on. This trial and error approach can rob performance and damage components, or worse. Pros know that you can't get top performance from RC cars & planes without the accurate information a wattmeter provides. Easy To Use "Watt's Up" is easy to use. It's like jumper cables. Connect between a power source and a load and you can measure all the important electrical parameters. It doesn't interfere with the components you connect it to.

Key Watt's Up Features

Small size and lightweight so you can take it with you First to capture peak Amps, peak Watts and minimum Volts 0V measurement for single battery cells Best combination of watt meter features on the market; measures wide range of values for any model and with high resolution Powered by your model or an auxiliary battery Full manual tells you everything you need to know Made in USA to ISO 9001 quality standards and has a one year warranty

Product Comparison

Doc Wattson Meter

Parameter	Range	Resolution	Accuracy (worst-case)
Voltage	0-60 Volts *	0.01 V	± (1% + 0.035)
Current	0-100 Amps ***	0.01 A	± (2% + 0.06)
Power	0-6554 Watts	0.1 W	
Charge	**0-6554 Amp hours**	**0.1 Ah**	
Energy	**0-650 Kilo Watthours**	**0.01 KWh (10 Wh)**	

Increased measurement range compared to Watt's Up Meter **shown in bold type**.

But only measures **seven** DC values with less resolution:

- Amp-Hours: (0 - 6554)
- Kilo Watt-hours: (0 - 650)
- Amps: (0-100 peak)
- Watts: (0 - 6554)
- Peak Amps & minimum Voltage ("sags")

Works with 12, 24, 36 or 48 volt batteries up to 60 V. Lead acid, SLA,

Watt's Up Meter

Parameter	Range	Resolution	Accuracy (worst-case)
Voltage	0-60 Volts *	0.01 V	± (1% + 0.035)
Current	0-100 Amps ***	0.01 A	± (2% + 0.06)
Power	0-6554 Watts	0.1 W	
Charge	**0-65 Amp hours****	**0.0001 Ah**	
Energy	**0-6554 Watthours****	**0.1 Wh**	

Measures up to **eight** DC values with much **higher precision.**

- Amp-Hours: (0 - 65)
- Watt-hours: (0 - 6554)
- Amps: (0-100 peak)
- Watts: (0 - 6554)
- Peak Amps & peak Watts
- Minimum voltage ("sags")
- Voltage: (0 - 60)

Works with 12, 24, 36 or 48 volt batteries up to 60 V. Lead acid, SLA, Gel Cell, and other battery types are all compatible.

* Using auxiliary power/battery input. Minimum is ~4.0 V without it.
** Much higher at reduced resolution.

Gel Cell, and other battery types are all compatible.

* Using auxiliary power/battery input. Minimum is ~4.0 V without it.
*** 50 Amps continuous. Derate for wire temperatures above 70 Deg C.

See more detailed Amp meter specifications
DC Ammeter & Amp Hour Meter Simulation
Watt's Up User Manual Version 2 [.PDF] (444KB)

*** 50 Amps continuous, 3-wire connection. Derate for wire temperatures next to case above 70 Deg C.

View a Larger Picture

Power Tender Plus 12V @ 5A

WATERPROOF, Shock & Vibration Resistant, Lightweight (LESS THAN 4 POUNDS), compact charger designed for either portable operation or permanent mounting. Charges and maintains both flooded and sealed, maintenance free, AGM, lead acid batteries.

On Sale
$85.95
List Price: $119.95
You Save: **$34.00**
SKU: BT-Power
Availability: In Stock

Quantity: 1

ADD TO CART

Volume Pricing

QTY	Price Each
1 - 5	$85.95
6 - 11	$81.65
12+	$77.35

Need a Larger Quantity? Request a Quote

Customer Reviews

Be the first to review this product.
Write a Review

Related Products

Bullet Connector to Powerpole - 1 ft. long
Bullet connector to Powerpole adapter cable - 1 ft long of 10 gauge Red/Black zip cord and incorporates 45 amp Powerpoles. Comes with both Bullet ends for selecting the correct polarity! Ideal for Battery Tender, Jr. adapter cable.

$9.95

Bullet to Alligator Clips Accessory for Power Tender Plus
The Power Tender Plus comes with ring terminals to permanently wire to a battery. If you need temporary connection use these alligator clips that mate to the The Power Tender Plus factory bullet connector. Includes 7.5 amp in line ATC fuse.

$9.95

Features

- WATERPROOF !!
- Shock & Vibration Resistant
- Lightweight - LESS THAN 4 POUNDS!
- Microprocessor Controlled, BTP Technology
- Charges both flooded & sealed maintenance free lead acid batteries.
- Reverse Polarity Protection (VIA EXTERNAL IN-LINE FUSE)

Files

Product Summary (PDF)

User Instructions (PDF)

Installation and Mounting Instructions (PDF)

Trouble Shooting Guide (PDF)

Warranty (PDF)

Description

WATERPROOF, Shock & Vibration Resistant, Lightweight (LESS THAN 4 POUNDS), compact charger designed for either portable operation or permanent mounting. Charges and maintains both flooded and sealed, maintenance free, AGM, lead acid batteries. Float / Maintenance function maintains batteries at proper storage voltage without the damaging effects caused by trickled chargers. The Power Tender PLUS is easy to use, it’s rugged, its compact, it's packed with power, and it’s backed by the reputation of the undisputed battery charger industry leader.

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Sears

You Pay: $49.99
Special Offers

CRAFTSMAN

Craftsman C3 19.2 volt DieHard Cordless Drill/Driver

Sears item# 00911581000 Mfr. model# 11581

Drill/driver with a powerful 19.2 volt DC motor and variable speed operation (0-400/0-1400 RPM). Reversible. Electric brake. Auto spindle lock. 1 hour charge. 24-position adjustable torque clutch prevents over-driving screws. Locks for drilling. 1/2 in. single sleeve keyless chuck. Spindle lock. 2 bubble levels - top and rear. Mid-handle design for balance and comfort.

- 19.2 V DC Motor - provides power for most home drilling needs
- Variable speed 0-400/0-1400 RPM - lets operator match the

Batteries

Powersonic SLA Batteries

Powersonic PS-12180 SLA 12V Battery

Part# 0B-PS-12180

A larger battery, with a narrower design, one of the most popular for medium to large robots. Sealed Lead-Acid. Put 2 of these in series for a 24V battery pack, Easy to use and reliable.

Capacity	18000mAh (18.0aH)
Voltage	12.0 V
Size	7.13 x 3.0 x 6.59"
Weight	13.10 lb
Terminal Type	Faston

$51.95 QTY 1 Add To Cart

Stock Status: Available

Details

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Electronics

Scorpion Speed Controllers

Scorpion XXL Speed Controller

Part# RP-SCORPXXL

Introducing the Scorpion XXL, a direct replacement for the XL, for those who need a higher-current handling speed controller.

The XXL can handle up to 20A continuous per side - 40A peak each. Otherwise it is exactly the same as the XL, except the battery terminal has been removed and replaced by pigtail 12" wires to handle the additional current.

Click photo to enlarge, double-click to shrink.

$159.99

QTY 1 Add To Cart

Stock Status: In Stock

Order Today, Get It Tomorrow! CLICK HERE

Scorpion XXL User Guide: coming soon

Other products you may be interested in:

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RC Gear

RC Radios- 4 Channel

Hitec Laser 4 Radio System Package - 75 Mhz

Part# 0-HRC156751

4 Channel FM Surface Radio System - This simple radio is a great start for beginner or those on a budget. Even though it is a low-cost radio, it still offers the popular elevon mixing option, most commonly used for Combat Robotics.

PLEASE NOTE: This is the 75Mhz (ground) version. If you need the 72Mhz (aircraft) version, click here.

FEATURES:
* 4 Channel Transmitter
* All Channel Servo Reverse
* ATV Channel 1 and 2
* Channel 1 and 2 Elevon Mixing
* Channel 2 and 4 V-Tail Mixing
* 5 LED Battery Power Meter
* Trainer Capable
* Low Battery Alarm

INCLUDED:
* 4 Channel FM Radio
* 75Mhz TX/RX dual conversion crystal set
* 600mAh TX Nicad Battery
* 4-cell AA Battery Holder for RX
* Overnight Charger
* 8 Channel Dual Conversion Receiver (below)

$113.99

QTY 1 Add To Cart

Stock Status: In Stock

Which Channel number will I get?:
When filling your order, we will randomly select a channel from our selection. If you have special needs for channels, please mention it in the 'Special Instruction' field upon checkout.

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Electronics

Power Switches

Hella Contour Master Power Switch

Part# 0-SWHELLA2

Need a bigger, heavy duty switch for your current-hungry bot? This big boy has a hard-to-miss large red knob with two positions, on and off (90 degrees to each other). The knob is non-removable when in these positions, so you don't need to fumble for special tools or a key. However, this switch features a unique setup where you can remove the knob in the OFF position, by pushing and twisting it 45 degrees CCW. This is the highest current-handling switch we carry.

- Continuous rating: 275 amps
- Surge current of over 1750 amps
- Surface or Recess mount
- Bring wires in from any of 4 sides, each with removable panels
- Bottom plastic panel to completely isolate all connections
- 3/8" copper terminals, silver-plated
- Assembled weight: 7 oz

Click photo to enlarge, double-click to shrink.

Measurements:

View additional angles

$21.99

QTY 1 Add To Cart

Stock Status: In Stock

Order Today, Get It Tomorrow! CLICK HERE

Automotive Circuit Breaker

Manual Lever REST. The is the ideal device to protect all your equipment. Available in 50, 70, 120 and 150 Amps.

Customer Reviews

(1 review)

Read All Reviews | Write a Review

Amps	SKU	Availability	Price	
50	CB-50	In Stock	$29.95	ADD TO CART
70	CB-70	In Stock	$29.95	ADD TO CART
120	CB-120	In Stock	$29.95	ADD TO CART
150	CB-150	In Stock	$29.95	ADD TO CART

Description

View a Larger Picture

Moisture Proof Splash Boot

Moisture proof your outdoor or automotive connections. The Splash Boot holds 2 sets of Powerpoles in mating male and female rubber boots. The wire input strain reliefs can be trimmed to accommodate various gauges of wire and ensure a tight seal.

New

$14.95

SKU: SplashBoot

Availability: In Stock

Quantity: 1

ADD TO CART

Customer Reviews

Be the first to review this product.

Write a Review

Description

Kit includes (1) male rubber boot, (1) female rubber boot, (4) red housings, (4) black housings, (8) 30 amp contacts and (4) slotted roll pins.

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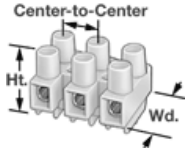
Touch-Safe Terminal Blocks

Recessed screws and terminals on these blocks prevent accidental contact with a live circuit without the need for additional covers (also known as Eurostyle). To make a connection, insert stripped wire into a terminal opening and tighten the screw. The blocks have a mounting hole between every circuit (screws not included) and can be cut into smaller sections without altering electrical properties.

Made of white nylon. Max. continuous temp. is 221° F. All are UL recognized and CSA certified.

Additional Terminal Block Specifications

For Blocks with Center-to-Center	Amps Per Circuit	For Wire Size, AWG	Mounting Hole Dia.
0.32"	20 @ 600 VAC/VDC	22-12	0.12"
0.39"	30 @ 600 VAC/VDC	18-10	0.15"
0.47"	40 @ 600 VAC/VDC	20-8	0.17"
0.59"	63 @ 600 VAC/VDC	14-6	0.17"



Three Circuit

No. of Circuits	0.32" Center-to-Center (0.72" Wd. x 0.68" Ht.) Lg.	Each	0.39" Center-to-Center (0.74" Wd. x 0.76" Ht.) Lg.	Each	0.47" Center-to-Center (0.91" Wd. x 0.83" Ht.) Lg.	Each	0.59" Center-to-Center (1.10" Wd. x 1.04" Ht.) Lg.	Each
2	0.53"	7618K611 $0.66	0.67"	7618K631 $0.77	0.79"	7618K651 $0.97	0.98"	7618K671 $1.66
3	0.85"	7618K612 .94	1.06"	7618K632 1.11	1.26"	7618K652 1.40	1.58"	7618K672 2.43
4	1.16"	7618K613 1.20	1.46"	7618K633 1.46	1.73"	7618K653 1.86	2.17"	7618K673 3.20
6	1.79"	7618K614 1.74	2.24"	7618K634 2.14	2.68"	7618K654 2.74	3.35"	7618K674 4.74
8	2.42"	7618K615 2.31	3.03"	7618K635 2.83	3.62"	7618K655 3.60	4.53"	7618K675 6.31
9	2.74"	7618K616 2.60	3.43"	7618K636 3.14	4.09"	7618K656 4.03	5.12"	7618K676 7.09
10	3.05"	7618K617 3.31	3.82"	7618K637 4.09	4.57"	7618K657 5.26	5.71"	7618K677 9.31
12	3.68"	7618K618 3.17	4.61"	7618K638 3.94	5.51"	7618K658 5.03	6.89"	**7618K678** 8.91

Contemporary Corrosion-Resistant Washdown Fiberglass Enclosures (NEMA 4X)

Lift-Off Cover

Hinged Cover with Padlockable Latch

Hinged Cover with 1/4-Turn Latch

Hinged Cover with Window

Streamlined to blend in well in the office or the plant, these gray enclosures are stronger than polycarbonate, but not as strong as stainless steel. They protect contents from dirt, water, corrosion, and oil/coolant dripping both indoors and out (rated NEMA 4X and 12). Enclosures have a polyurethane-gasketed cover. Screws, hinges, and latches are stainless steel. Working depth (area available for component mounting) is approximately 0.7" less than overall depth. Opening size is approximately 0.5" less than overall height and width. Enclosures have four 1/4" dia. mounting holes (or choose the optional flange-style mounting feet, sold separately, to aid installation). UL and C-UL listed. CSA certified.

Lift-Off Cover—Have four captive screws to hold the cover in place. **Hinged Cover with Padlockable Latch—**Have a hasp that accommodates 3/8" max. shackle dia. (padlock not included). **Hinged Cover with 1/4-Turn Latch—**Latch is coin-slot style. **Hinged Cover with Window—**Have two captive screws for closing. Window is acrylic.

Panels are for mounting components inside and are aluminum.

Enclosures					Panels			
Overall Size								
Height	Width	Depth		Each	Height	Width		Each
Lift Off Cover With Captive Screws Without Window								
7.2"	7.2"	5.1"	74995K61	$80.10	4.9"	4.9"	6917K12	$7.42
9.2"	7.2"	5.1"	74995K62	81.19	6.9"	4.9"	6917K13	8.35
11.2"	9.2"	6.1"	74995K63	89.94	8.9"	6.9"	6917K14	11.32
13.2"	11.2"	6.6"	74995K64	96.90	10.9"	8.8"	6917K15	12.28
15.2"	13.2"	7.1"	74995K65	107.75	12.9"	10.9"	6917K16	14.68
Hinged Cover With Padlockable Latch Without Window								
7.2"	7.2"	5.1"	74995K71	99.65	4.9"	4.9"	6917K12	7.42
9.2"	7.2"	5.1"	74995K72	99.73	6.9"	4.9"	6917K13	8.35
11.2"	9.2"	6.1"	74995K73	104.74	8.9"	6.9"	6917K14	11.32
13.2"	11.2"	6.6"	74995K74	117.06	10.9"	8.8"	6917K15	12.28
15.2"	13.2"	7.1"	74995K75	124.22	12.9"	10.9"	6917K16	14.68
Hinged Cover With 1/4-Turn Slotted Latch Without Window								
7.2"	7.2"	5.1"	74995K81	119.42	4.9"	4.9"	6917K12	7.42
9.2"	7.2"	5.1"	74995K82	119.50	6.9"	4.9"	6917K13	8.35
11.2"	9.2"	6.1"	74995K83	125.56	8.9"	6.9"	6917K14	11.32
13.2"	11.2"	6.6"	74995K84	140.33	10.9"	8.8"	6917K15	12.28
15.2"	13.2"	7.1"	74995K85	149.18	12.9"	10.9"	6917K16	14.68
Hinged Cover With Captive Screws With Window								
7.2"	7.2"	5.1"	74995K91	116.77	4.9"	4.9"	6917K12	7.42
9.2"	7.2"	5.1"	74995K92	126.94	6.9"	4.9"	6917K13	8.35
11.2"	9.2"	6.1"	**74995K93**	138.03	8.9"	6.9"	6917K14	11.32
13.2"	11.2"	6.6"	74995K94	169.31	10.9"	8.8"	6917K15	12.28
15.2"	13.2"	7.1"	74995K95	188.36	12.9"	10.9"	6917K16	14.68
Mounting Feet (Set of 4)							74995K99	Per Set $16.74

Battery Boxes

Protect batteries from dirt, debris, and water.
Polypropylene boxes include a tie-down, screws, and bracket.
Polyethylene boxes do not include any mounting components.
Aluminum boxes include a stainless steel hold-down and all necessary nuts and bolts.

Polypropylene

Fits Battery Size BCI Group	Inside Ht.	Inside Wd.	Inside Dp.	Outside Ht.	Outside Wd.	Outside Dp.		Each
Polypropylene								
U1	7 1/2"	8"	5 1/4"	8"	10 1/2"	7 1/2"	**69995K81**	$15.49
24	10 1/8"	11 1/8"	7 3/4"	10 5/8"	14"	9 5/8"	69995K85	13.58
27	10 1/2"	13 7/8"	7 1/4"	10 7/8"	16 7/8"	9 5/8"	69995K86	16.31
24-31	9 3/4"	14 1/2"	7 7/8"	10 1/2"	17 3/4"	10 1/8"	69995K82	14.97
Polyethylene								
Dual 6V	12"	14 3/4"	10 3/4"	14"	18 1/4"	14 1/4"	69995K71	118.69
8D	10 3/4"	20 1/2"	10"	12 1/2"	25"	14"	69995K87	88.11
4D	11 1/2"	21"	9 1/2"	13 3/4"	23 3/8"	12"	69995K83	131.50
Aluminum								
24	10 3/8"	11 3/4"	8 3/8"	10 5/8"	12"	8 5/8"	69995K72	166.31
27	11"	14"	8 7/8"	11 1/4"	14 1/4"	9 1/8"	69995K73	189.93

Utility Tubs

Sometimes bigger still is better—if your pail isn't large enough, choose a tub for its greater storage capacity. All are nestable.

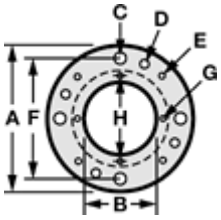
(J) Round Reinforced Rubber— Reinforced, ribbed sides make these tubs crack and crush resistant. All are seamless and have a curved lip around the top for carrying. Max. temperature is 212° F. Color is black.

(K) Round Rubber/Polyethylene with Rope Handles— Blend of rubber and polyethylene stands up to hard use and resists cracking. Rope handles are polypropylene. Max. temperature is 165° F. Please specify color: black, blue, or red.

(L-N) Oval, Round, and Square Galvanized Steel with Welded-On Handles— Have a rod-reinforced top edge and leakproof, locked seams. Not temperature rated.

Cap., gal.	Outside Top Size	Outside Ht.	Gauge		Each
(J) Round Reinforced Rubber					
6 1/2	17" dia.	8"	___	4164T3	$12.78
15	26" dia.	9 1/2"	___	4164T6	23.87
(K) Round Rubber/Polyethylene with Rope Handles					
10	18" dia.	14"	___	4003T6	11.98
17 1/2	21 1/4" dia.	16 1/2"	___	4003T7	21.11
(L) Oval Galvanized Steel with Welded-On Handles					
7 1/4	23 5/8" x 13 3/4"	7 5/8"	30	4126T8	21.96
16 1/4	32 5/8" x 16 1/2"	10 5/8"	30	4126T9	31.00
(M) Round Galvanized Steel with Welded-On Handles					
11 1/2	20" dia.	10 1/8"	30	4126T4	29.60
17	23 3/4" dia.	10 3/4"	30	4126T6	39.08
(N) Square Galvanized Steel with Welded-On Handles					
18 1/2	22 1/4" x 22 1/4"	11 1/2"	30	4126T3	52.19

EZ-Position Turntables



Notches on these turntables give you repeatable positioning capability. Space-saving design is only 5/16" high. Ball bearings are housed in a large circular race, and provide smooth, stable motion. Turntables are made of galvanized steel with carbon steel ball bearings. They mount with standard self-tapping screws (not included).

One-position turntables have one detent at 180° . **One-stop** turntables have one dead stop at 180° , allowing rotation of about 175° in either direction—but not a full 360° . **Four-position** turntables have four detents spaced at 90° intervals; **Eight-position** turntables have detents every 45° .

Load Cap., lbs.	O'all Dia. (A)	Ctr. Dia. (B)	Dia. (C)	Top Dia. (D)	Top Dia. (E)	Ctr.-to-Ctr. (F)	Bottom Dia. (G)	Bottom Ctr.-to-Ctr. (H)	No. of Holes		Each
One-Position											
750	9"	4.5"	0.28"	___	0.13"	6.18"	0.20"	5.18"	16	1797K1	$7.99
1000	12"	6.28"	0.28"	0.20"	0.13"	9.47"	0.20"	8.5"	20	1797K2	11.43
One-Stop											
750	9"	4.5"	0.28"	___	0.13"	6.18"	0.20"	5.18"	16	1797K3	9.37
1000	12"	6.28"	0.28"	0.20"	0.13"	9.47"	0.20"	8.5"	20	1797K4	14.11
Four-Position											
750	9"	4.5"	0.28"	___	0.13"	6.18"	0.20"	5.18"	16	1797K21	8.25
1000	12"	6.28"	0.28"	0.20"	0.13"	9.47"	0.20"	8.5"	20	1797K11	13.80
Eight-Position											
750	9"	4.5"	0.28"	___	0.13"	6.18"	0.20"	5.18"	16	1797K22	8.65
1000	12"	6.28"	0.28"	0.20"	0.13"	9.47"	0.20"	8.5"	20	1797K12	14.79

About Gas Springs

Gas springs are typically used to assist in opening lids, covers, windows, conveyors, and seats—similar to a hatchback opening on a car. If you want to close an object, you will need a close-assist gas spring (see page 1185).

Note: All gas springs contain pressurized nitrogen gas as well as hydraulic fluid that lubricates the seal and provides slam-resistant damping at the end of the stroke. To avoid loss of force, you should store and install gas springs rod-end down.

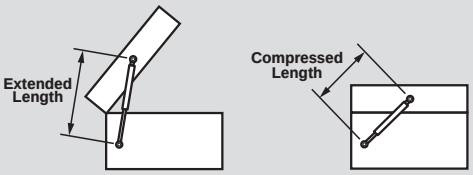
Choosing the Right Force

Your gas spring must have enough force to lift your object and hold it open, yet not too much force that you can't push it back to its original position. To determine the right amount of force, you'll need to know the weight of the object you're moving. One way to do this is to use a force or tension gauge (see page 1553).

Estimating Force—If you can't weigh your object, use the following chart to help determine its weight so you can estimate the force you'll need:

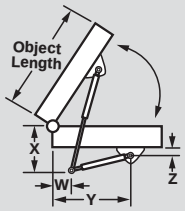
Material Weight per Square Foot (12″×12″)			
	Steel	**Aluminum**	**Plastic**
1/16″ Thick.	2.65 lbs.	0.83 lbs.	0.17 lbs.
1/8″ Thick.	5.21 lbs.	1.71 lbs.	0.58 lbs.
1/4″ Thick.	10.46 lbs.	3.61 lbs.	1.10 lbs.

Choosing the Right Extended and Compressed Length

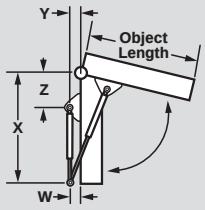


To determine the extended length that's right for your application, open your lid as wide as you need and measure the distance between the two mounting points. For compressed length, close your lid (or lower it to where you need it) and measure the distance between the two mounting points.

A Guide to Choosing the Correct Gas Springs



Horizontal-to-Vertical Lift

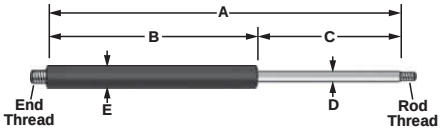


Vertical-to-Horizontal Lift

The examples at left illustrate how the length, weight, and opening direction of your object as well as the mounting position of the springs can affect which gas springs are right for your application. Find an example that is similar to your application and use it as a guide to select your springs. The specifications are based on using two gas springs, a 90° opening, and the center of gravity at the middle of the object.

For Object Length	**For Object Weight**	***Recommended Gas Spring***			***Recommended Mounting Position***			
		Force Rating	**Extend. Length**	**Comp. Length**	**(W)**	**(X)**	**(Y)**	**(Z)**
Horizontal-to-Vertical Lift								
12″	20 lbs.	40 lbs.	10.71″	6.77″	1″	1″	11.19″	0.89″
12″	40 lbs.	40 lbs.	10.71″	6.77″	1″	1.5″	10.69″	0.89″
18″	60 lbs.	70 lbs.	13.74″	8.27″	1″	2.5″	12.72″	0.89″
18″	100 lbs.	100 lbs.	13.74″	8.27″	1.25″	3″	12.22″	0.89″
30″	40 lbs.	50 lbs.	18.22″	10.35″	2″	3.5″	16.18″	0.89″
Vertical-to-Horizontal Lift								
12″	20 lbs.	40 lbs.	10.71″	6.77″	2.5″	12.22″	0.89″	2″
12″	40 lbs.	50 lbs.	10.71″	6.77″	2.5″	11.77″	0.89″	3″
18″	60 lbs.	100 lbs.	13.74″	8.27″	2.5″	15.09″	0.89″	3″
18″	100 lbs.	130 lbs.	13.74″	8.27″	2.5″	14.66″	0.89″	4″
30″	40 lbs.	70 lbs.	18.22″	10.35″	1.5″	19.32″	0.89″	5.5″

Gas Springs CAD



Our most popular gas springs are perfect for handling a variety of open-assist applications. Use them with your choice of fittings (unless noted), mounting studs, and mounting brackets (sold separately; see pages 1181 and 1182)—just be sure to match the rod and end thread sizes. Temperature range is −22° to +176° F, unless noted. **To Order:** Please specify force from those available below. If you don't see the exact force you need, just round up to the closest available force.

Steel—All have a steel cylinder and piston rod. The seal is rubber. ***Type 316 Stainless Steel—***The choice for corrosion resistance. All have a Type 316 stainless steel cylinder and piston rod. The seal is Viton, unless noted.

Extend. Lg. (A)	**Comp. Lg. (B)**	**Stroke Lg. (C)**	**Available Force, lbs.**	**Rod Dia. (D)**	**Cylinder Dia. (E)**	*Steel*	**Each**	*Type 316 Stainless Steel*	**Each**
M6 Rod and End Thread Size									
5.51″	3.54″	1.97″	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130	0.32″	0.75″	9416K14	$11.59	4175T1♣	$47.20
5.9″	3.54″	2.36″	15, 20, 30, 40, 50, 60, 70, 80	0.24″	0.59″	9416K11	9.47	4175T2♣	41.40
8.15″	4.61″	3.54″	15, 20, 30, 40, 50, 60, 70, 80	0.24″	0.59″	9416K12	11.30	4175T4♣	44.30
8.35″	5.2″	3.15″	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130	0.32″	0.75″	9416K24	11.84	4175T3♣	49.40
10.71″	6.77″	3.94″	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130	0.32″	0.75″	9416K15	12.46	4175T5	53.73
13.74″	8″	5.51″	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130	0.32″	0.75″	_____	____	4175T6	57.66
13.74″	8.27″	5.47″	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130	0.32″	0.75″	9416K16	12.45	_____	____
15.63″	9.33″	6.3″	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130	0.32″	0.75″	9416K17	13.02	4175T7	60.30
18.19″	10.32″	7.87″	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130	0.32″	0.75″	_____	____	4175T8	61.41
18.22″	10.35″	7.87″	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130	0.32″	0.75″	9416K18	14.24	_____	____
18.62″	10.35″	8.27″	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130	0.32″	0.75″	9416K19	14.65	4175T9	63.22
22.36″	12.52″	9.84″	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130	0.32″	0.75″	9416K2	17.11	4175T15	65.97
M8 Rod and End Thread Size									
18.18″	10.31″	7.87″	25, 50, 75, 100, 125, 150, 175, 200, 225, 250	0.39″	0.87″	9416K28	16.53	_____	____
18.23″	10.36″	7.87″	25, 50, 75, 100, 125, 150, 175, 200, 225, 250	0.39″	0.87″	_____	____	4175T21	70.28
26.38″	16.14″	10.24″	25, 50, 75, 100, 125, 150, 175, 200, 225, 250	0.39″	0.87″	9416K21	18.56	4175T23	81.41
28″	15.2″	12.8″	25, 50, 75, 100, 125, 150, 175, 200, 225, 250	0.39″	0.87″	9416K22	19.02	4175T25	85.66
29.33″	15.56″	13.77″	25, 50, 75, 100, 125, 150, 175, 200, 225, 250	0.39″	0.87″	9416K54★	16.97	_____	____
33.94″	17.8″	16.14″	25, 50, 75, 100, 125, 150, 175, 200, 225, 250	0.39″	0.87″	9416K23	21.29	4175T27	97.92
M10 Rod and End Thread Size									
18.9″	10.9″	8″	200, 250, 300▲, 350▲, 400▲, 500▲, 550▲	0.55″	1.1″	9416K51♦	68.75	4175T35	112.48
26.77″	14.77″	12″	200, 250, 300▲, 350▲, 400▲, 500▲, 550▲	0.55″	1.1″	9416K52♦	82.08	4175T36	128.80
34.84″	18.84″	16″	200, 250, 300▲, 350▲, 400▲, 500▲, 550▲	0.55″	1.1″	9416K53♦	109.00	4175T37	156.07

♣ Seal is rubber. ★ Temp. range is −10° to +176° F. ▲ Not for use with 13 mm ball-socket fittings. ♦ Temp. range is −5° to +158° F.